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THE PLANT DISEASE SURVEY

VOLUME IV NUMBER 6

October 1, 1920

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

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POTATO WART DISCOVERED IN ALLEGANY COUNTY, MARYLAND.

Third state now added to list of those where disease occurs.

Field assistants of the Plant Disease Survey working under the leadership of C. L. Farabaugh have found potato wart in three mining villages in the bituminous coal fields of Western Maryland. On September 9 a single, infected, volunteer potato plant in a garden at Lord, Maryland was found. The specimen showed typical symptoms of wart and a microscopic examination revealed the presence of the organism. The owner of the garden, and also a neighbor, said that their potatoes were badly warted last year. On September 18 the disease was discovered again in one corner of a single garden at Mount Savage, which is about 8 miles northeast of the other location; and three days later several hills showing wart were located in a garden at Eckhart Mines, a village about midway between Lord and Mount Savage. In all of these cases the owners mentioned that the disease had been bad in previous years.

These three new findings draw the quarantine machinery of another state into operation and widen the problem of effective control. The finding of the disease on a single, volunteer plant in a locality emphasises the difficulty of locating all gardens that harbor the potato wart organism.

POTATO

Late blight caused by Phytophthora infestans.

The weather of the latter half of September has been comparatively dry in the northeastern late potato area where Phytophthora is prevalent. On this account the disease has not progressed greatly and not much more rot has developed. Maine has had more rain than most of the other states so it is probable that the disease has made some progress there, but killing frosts may be expected about October 1 to put an end to growth of that part of the plant and fungus above ground.

Between the dates of August 5 and September 7, twelve cars of New Jersey potatoes showed an average of 2% late blight dry rot, when inspected at destination, and many other cars showed excessive amounts of slimy soft rot and Fusarium rot which were primarily due to late blight.

Correction: On page 55 of the September 1 issue of this Bulletin the date of the first appearance of late blight in Wisconsin should read July 25 instead of June 25.

New York: Week of frequent showers, deficient sunshine, and moderate temperature. Conditions favored spread of late blight of potatoes; dry weather and sunshine needed to prevent increased blight and rot. (Nat. Weather and Crop Bul. s. 1920: 3, Sept. 15, 1920)

New Jersey: On September 3, I made a second trip to the Monmouth County potato territory..... From the pathological point of view, conditions have changed since my last visit, made on August 18. At that time, late blight injury followed by slimy soft rot, was common in the fields. This situation was made possible at that time by the heavy rainfall which had prevailed for several weeks. Now, after a period of dry weather, there is but little rot found in the fields. I saw no late blight injury of tubers in barrels examined in the field or in stock that was passing over the grader at the car. This does not necessarily mean, however, that the Inspector will find no late blight dry rot in these cars. Since the disease was present in the field earlier in the season, it is probable that many of the tubers are infected and will develop the disease if held in storage. (F. C. Meier, Bureau of Markets Div. Letter 1, No. 24: 8, Sept. 9, 1920)

Delaware: Some rot reported. (Weekly Crop Notes,* Sept. 9, 1920)

Virginia: Late potatoes doing well, except in Orange and Roanoke Counties, where rot is reported. (Nat. Weather and Crop Bul. s. 1920: 3, Sept. 15, 1920)

North Carolina: Fall or mountain crop of potatoes injured by excessive rainfall causing rotting. (Weekly Crop Notes,* Sept. 16, 1920)

Michigan: Crop hit by late blight in some sections. (Weekly Crop Notes, Sept. 9, 1920)

Wisconsin: Four centers of infection have been seen; two in Oneida County, one in Price County, and one in Forest County. Dry weather in the central and western potato sections has been important in preventing an epidemic. Tuber rot on Irish Cobbler was noted in Price County. (Vaughan, Sept. 1)

Mosaic (cause undetermined)

Maine: Quite common in the vicinity of Corinna. Counts of mosaic run from 2 to 80%. (C. R. Stevenson, Sept. 11)

New Hampshire: Very prevalent throughout the state. (Butler, Sept. 1)

Vermont: Twenty-five to fifty percent of the potatoes of the state are affected; in some localities it is below this average; in others above. (Lutman, Sept. 1)

Wisconsin: The mosaic which showed up earlier in the season has been largely masked by dry weather and development of the vines. Late planted Triumphs have much more mosaic than early planted, showing the importance of environment in the severity of this trouble. (Vaughan, Sept. 1)

Idaho: Mosaic rather serious in some fields in north Idaho. Not common in the southern part of the state. (Hungerford, Sept. 1)

In New York this season inspection of potatoes for seed purposes is being made. The results of some of this work are already available and Dr. Chupp has

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* U. S. Dept. Agr. Bur. Crop Estimates, Weekly Crop Notes, 1920.

furnished figures showing the amounts of vine diseases that were present in the inspected fields. The data on mosaic and leaf roll are presented in the accompanying table. The fields inspected of course represent the best potatoes of each county so that the averages for each disease are far too low for the entire state.

Table 9. Preliminary report of mosaic and leaf roll, August 1920, based on results obtained from inspections made by H. H. Clum, in New York.

County	Acreage	Number of fields inspected	Mosaic: Number of fields affected	Mosaic: Average percentage of mosaic	Leaf roll: Number of fields affected	Leaf roll: Average percentage of leaf roll
Allegany	115.75	35	26	0.9	11	.05
Cayuga	27.5	13	9	1.33	13	5.9
Chemung	7.	2	2	1.64	2	2.37
Erie	50.25	17	6	0.16	17	3.8
Genesee	54.2	11	2	0.23	8	.23
Livingston	25.	9	6	1.37	5	2.01
Monroe	56.25	16	11	0.54	15	10.66
Onondaga	75.25	25	25	10.5	24	7.27
Ontario	59.	20	17	2.42	14	2.
Orleans	88.75	23	16	0.45	22	6.81
Oswego	61.25	24	23	14.11	18	3.54
Seneca	25.5	13	9	0.08	4	.47
Steuben	72.5	16	12	0.52	6	.4
Wyoming	63.	18	11	0.77	14	1.25
	781.02	242	175	2.08	173	3.39

Leaf roll (cause undetermined)

Maine: Quite common in the vicinity of Corinna. Counts of leaf roll run from 1 to 40%. (C. R. Stevenson, Sept. 11)

Vermont: Very general but, of course, not present in all localities or fields. Mr. Gilbert estimates that 5-10% of the seed potatoes he has seen are so affected, and these seed fields are probably a little above the average. (Lutman, Sept. 1)

New Hampshire: Very little observed. (Butler, Sept. 1)

Wisconsin: Very little of this trouble has been observed. The rolling of leaves seems to be associated in many cases with root injury by black leg or Rhizoctonia. (Vaughan, Sept. 1)

New York: (See Table 9 above).

Tip burn.

Vermont: Much less important than usual. I would estimate that in the Champlain Valley in average years potatoes had lost 40-50% of their foliage from tip burn by September 1. This year not more than 15-20%. No tip

burn locally of any importance before about August 20, but made rapid progress for a few days then. (Lutman, Sept. 1)

Indiana: Not as severe as in 1919. (Gardner, Sept. 1)

TOMATO

Fusarium wilt caused by Fusarium lycopersici.

What is thought to be Fusarium wilt is reported from Michigan for the first time. The report cannot be considered authentic, however, until specimens have been carefully examined by men familiar with the disease.

New Jersey: In one new locality. (Cook, Sept. 15)

Virginia: Reported from Starkey, Roanoke County, causing almost total loss of susceptible varieties. Norton and Marvel were fully resistant. (Fromme, Sept. 15)

Ohio: In all fields where the Fusarium wilt has been demonstrated in past years its presence has been noted this season and the loss occasioned by it, especially in the truck sections, has been very severe. Wilt resistant varieties, however, have given very promising returns for Ohio. Losses due to Fusarium wilt are reckoned as high as 50% in some sections. (Thomas, Sept. 15)

Indiana: Common in canning crop of central Indiana, usually affecting scattered plants in a field. As yet our soils are not badly infested with this disease. Evidence was afforded of its extensive introduction into the state with southern-grown plants this year. (Gardner, Aug. 15)

Present to a limited extent in many fields but not yet a limiting factor in the Indiana crop. (Sept. 15)

Michigan: Two suspected cases reported, Adrian, Lenawee County, and Lansing. These are first cases recorded for the state, and probabilities are that the cases were true wilt. (Coons, Sept. 15)

Wisconsin: Specimens have been examined from Walworth and Grant Counties. In gardens only. Loss only a few plants. (Vaughan, Sept. 15)

Leaf blight caused by Septoria lycopersici.

Septoria is causing much damage in some states this year, as shown by the following reports. As usual it is the most destructive of the tomato diseases.

New York: More or less common wherever tomatoes are grown. First reported May 24 in Albany County. Since then it has been observed in Niagara, Erie, Kings, Tompkins, and Chautauqua Counties. (Chupp, Aug. 15)

Niagara County: Septoria not as serious as in 1919, but is very prevalent and doing considerable damage. Of the total reduction in yield due to leaf diseases, approximately 25% is due to Septoria. (R. P. White, Sept. 15)

New Jersey: Very abundant and the cause of heavy losses. (Cook, Sept. 15)

Virginia: Severe, especially so in western canning sections. Defoliation

almost complete by September 1. Production curtailed by as much as 50% in many fields. (Fromme, Sept. 15)

Ohio: There is no difficulty in demonstrating the presence of leaf blight in nearly all tomato fields, yet we are assured that loss occasioned by this organism alone seems lower than the past season. (Thomas, Sept. 15)

Indiana: Especially severe this year both in gardens and in canning crop. (Gardner, Aug. 15)

Most prevalent and destructive disease of this crop this year owing to the wet weather. The disease is severe in gardens and in the canning crop. Extreme defoliation with subsequent sunscald and premature ripening of small fruit has been caused. (Sept. 15)

Michigan: Extremely common, making quality of fruit very poor this year. Loss ranging from 10 to 25%. (Coons, Sept. 15)

Wisconsin: A small amount of leaf blight has been seen and reported. Damage slight. (Vaughan, Sept. 15)

Minnesota: General in its occurrence. Slight to moderate infection. Severe in some localities. Earliest report July 20. (Section of Plant Pathology, Sept. 15)

Late blight caused by Phytophthora infestans.

It is hoped that collaborators will take special pains to note and report all occurrences of late blight on tomatoes, as it is thought that considerable can be learned about the weather relations of Phythphthora infestans through a study of distributional data. Cases in New York and Ohio as reported below are especially interesting as those states are on the outer boundaries of occurrence.

New York: Albany and Cayuga Counties, July 12. (Chupp, Aug. 15)

Virginia: Severe throughout south-western Virginia. Many crops at Blacksburg almost total loss. (Fromme, Sept. 15)

West Virginia: Prevalent in gardens at Gary (Aug. 27), and at Fayetteville (Aug. 28). (Hesler)

Ohio: Throughout the latter part of August and early September we have had no difficulty in finding the late blight infections in nearly all tomato plantings investigated. The result of the attacks has been varied, ranging from only a marked infection to a 100% loss, depending largely upon the location of the plantings, regarding drainage, aeration, and whether or not the tomato vines were staked and tied. In many cases both the fruit and vines had been equally and seriously attacked. (Thomas, Sept. 15)

Early blight caused by Macrosporium solani.

New York: More or less common wherever tomatoes are grown, but usually reported less prevalent than the Septoria leaf blight. First reported May 24 in Albany County. Since then it has been observed in Niagara, Erie, Thompkins, Chautauqua, and Greene Counties. (Chupp, Aug. 15)

Niagara County: Early blight of tomatoes also very prevalent in this section, but not as serious as Septoria lycopersici. Several fields badly infested and practically all the reduction in foliage due to it, very little Septoria being present. However, both are usually present in the same field. Approximately 10% of the total reduction in yield is due to Macrosporium. (R. P. White, Sept. 15)

New Jersey: Very abundant. (Cook, Sept. 15).

Ohio: The greater part of defoliation of tomato plants throughout northern Ohio was occasioned by early blight, an observation which is far different from that obtained last year. Although some growers do not consider such attacks worthy of much notice, it is very evident that the fruit which set from the middle to the latter part of August failed to develop, thereby occasioning quite serious loss. (Thomas, Sept. 15)

Indiana: Not at all common in canning crop of central Indiana. Occurs in gardens and to a considerable extent in the canning crop in southern Indiana. (Gardner, Aug. 15)

Michigan: Common, producing slight loss as a leaf spot, and perhaps 1% loss as a fruit rot. (Coons, Sept. 15)

Wisconsin: A small amount of early blight has been seen; none reported. (Vaughan, Sept. 15)

Minnesota: Not very common this season. (Section of Plant Pathology, Sept. 15)

Blossom end rot (non-parasitic)

New York: Very prevalent, July 12. (Chupp, Aug. 15)

Niagara County: Not serious in this locality this year. Not nearly as bad as last. Only a few fields were planted late or did not get a good start were caught by the dry spell of August, and show any amount of blossom-end rot. Total reduction due to blossom-end rot will be around 1%. (R. P. White, Sept. 15)

Indiana: Prevalent on early set of fruit in canning crop. (Gardner, Aug. 15)

Very prevalent and destructive in the canning crop. Worse than in 1919. There is very much so-called "rot" in the canning crop this year due mostly to blossom-end rot, infected growth cracks, infected hail injury, and infected worm injury. In addition, catface is very common. (Gardner, Sept. 15)

Wisconsin: Considerable loss from blossom-end rot has occurred in the eastern and southern sections in city truck gardens. (Vaughan, Sept. 15)

Idaho: Common in non-irrigated sections. Also doing considerable damage in irrigated sections where the water supply has not been sufficient. (Hungerford, Sept. 15)

Washington: Reported from Spokane and Kennewick districts. (Heald & Dana, Aug. 15)

Mosaic (cause undetermined)

Mosaic has been reported from New York, where it is apparently unimportant, and from Indiana as follows:

"Prevalent throughout central Indiana. Apparently not as severe as last year. The yield is reduced on plants 'infected' early in the season, but it is doubtful if the plants infected late in the season will show any reduction in yield." (Gardner, Aug. 15)

Leaf roll (cause undetermined)

Virginia: Arlington Experiment Farm: Fifteen or twenty cases of tomato leaf

roll, very similar in appearance to potato leaf roll, were found on the Arlington Experiment Farm at Rosslyn, Virginia, this year. These plants have a shortened, stunted appearance, a very stiff, erect growth, and thick up-rolled leaves. Usually they are barren. They resemble plants affected by Western or Yellow Blight in general appearance and in the purple color along the veins, but lack the yellow color of the foliage and the cortical sloughing of the rootlets. (Pritchard, Sept. 9)

Other diseases.

Western yellow blight, caused by Fusarium sp., has been reported from New Mexico and Idaho as less serious than last year, although prevalent.

Western blight, said to be caused by Rhizoctonia sp., is reported from Washington as present in the same amounts as in previous seasons.

Winter blight, cause undetermined, is reported from Albany County, New York, and from New Jersey as follows:

"The so-called 'winter blight' previously found in greenhouses is a very severe out-door disease in some localities." (Cook, Sept. 15)

BEAN

Anthracnose caused by Colletotrichum lindemuthianum

It seems that anthracnose while not frequent in Michigan and almost absent in states farther west, is serious in New York this season.

Vermont: Unimportant this year. No complaints of it from other parts of the state, so would judge that it had been a comparatively free year. Possibly due to the very dry weather in June and August. (Lutman, Sept. 1)

New York: This disease is worse this year than it has been since 1915. Possibly a 10-12% loss in the crop. (Burkholder, Sept. 1)

Virginia: Severe in Montgomery, Rockbridge and Clarke Counties. Excessive summer rains resulted in severe pod infection on late crop. (Fromme, Sept. 1)

Wisconsin: A very small amount of the disease has been seen or reported. (Vaughan, Sept. 1)

Blight caused by Bacterium phaseoli

Vermont: Quite a lot of blight locally during July but dried up and was unimportant during August. Considerable injury in reduction of leaf surface. (Lutman, Sept. 1)

New York: Not severe this year. One to two percent loss in crop. (Burkholder, Sept. 1)

Virginia: Severe at Blacksburg, also reported from Lynchburg. (Fromme, Sept. 1)

Wisconsin: Considerable blight has been seen. However, the loss is not considered severe. (Vaughan, Sept. 1)

Mosaic (cause undetermined)

Vermont: Observed locally on dwarf pole horticultural. Seemed to be quite serious in that it caused the early death of the plants in August (hot and fairly dry). (Lutman, Sept. 1)
New York: Susceptible varieties not being grown so extensively this year. Loss due to the disease small. (Burkholder, Sept. 1)
Wisconsin: Very little mosaic has been observed. (Vaughan, Sept. 1)

Rust caused by Uromyces appendiculatus

New York: Only a trace observed. (Burkholder, Sept. 1)
Virginia: Not unusually severe but causing heavy loss on susceptible varieties, especially in southwestern part of the state. (Fromme, Sept. 1)
Wisconsin: A very small amount of rust has been observed. It occurs so late in the season that little damage is done. (Vaughan, Sept. 1)

Stem rots caused by various fungi

Stem rot, caused by Fusarium martii phaseoli, has been fairly general in New York, however, the loss in yield from the disease was small due to sufficient rains according to W. H. Burkholder.

Stem rot, caused by Fusarium sp., was rather common in Indiana earlier in the season.

Stem rot, caused by Sclerotium rolfsii, was reported from West Virginia and Georgia.

ONION

Smut caused by Urocystis cepulae

New York: Present in usual amounts, up to 50%, and spreading gradually to new muck lands. Treatment quite general and effective. Average estimated reduction in yield 18-20% in Wayne County. (H. W. Dye, Sept. 15)
Ohio: Where seed treatment has not been employed serious loss has been occasioned. No section seems to be free from the disease yet its presence is more manifest in some than in others. (Thomas, Sept. 15)
Indiana: Very severe in a few fields in Lake County near the Illinois line. These are devoted to the growing of sets. The formalin drip treatment was applied to a part of these fields under the direction of Dr. C. T. Gregory this spring with successful results. (Gardner, Sept. 15)
Wisconsin: Smut is found in a few new fields this year in the Racine-Kenosha district. The control with formaldehyde solution applied with the seed has been satisfactory in most cases. (Vaughan, Sept. 15)

Downy mildew caused by Peronospora schleideni

New York: Wayne County: General in occurrence but coming just as the onions were beginning to go down normally so causing no marked reduction in yield.

In some late planted fields there was considerable reduction. Decidedly more prevalent than in preceding years but appearing late. (H. W. Dye, Sept. 15)

Louisiana: Present, but no survey made this season. (Edgerton, July 1)

Ohio: Very serious losses have been reported in fields located upon low, muck soil especially where heavy growth developed and thick plantings were made. Weather conditions are held largely responsible for losses which have been much more serious than during normal years. (Thomas, Sept. 15)

Other diseases

Pink root, caused by Fusarium sp., is present in 25% of the fields of Wayne County, New York, and probably reducing the yield in a few, according to H. W. Dye. The dry season has apparently favored the destructiveness of the disease. A similar disease was found in Lake County, Indiana, but was not doing any damage, according to M. W. Gardner.

Pink root, caused by Fusarium malli, is prevalent in Texas, probably causing 10% loss.

Black mold, caused by Macrosporium sp., was very severe on seed onions in the Bayou La Fourche district in Louisiana according to Edgerton.

Smudge or anthracnose, caused by Colletotrichum circinans, is prevalent on white onions in the Indianapolis, Indiana market gardens.

Neck rot, caused by Botrytis alii, is reported in the 1919 crop at Pullman, Washington.

WATERMELON

Stem end rot caused by Diplodia sp.

Diplodia is reported by McClintock as being present to some extent in all fields in Georgia and affecting 5% of the melons in some. In Indiana Gardner reports it rather common on malformed and stunted fruits in the field, usually following the non-parasitic blossom end injury. It does not occur as a stem end rot in Indiana according to him.

In shipments of watermelons from the South it is the most common decay and very destructive in some cases.

Table 10. Percentages of stem end rot in carload shipments of watermelons from the South, as determined by food-products inspectors of the Bureau of Markets, (Aug. 6-23, 1920).

Origin of shipment	No. of cars with stem end rot	Percentage of stem end rot	Origin of shipment	No. of cars with stem end rot	Percentage of stem end rot
Georgia	46	16	Texas	5	10
Maryland	1	35	Unknown	3	5
Missouri	16	4	Total number of cars with stem end rot		78
North Carolina	1	2			
South Carolina	6	11	Average amount of stem end rot in 78 cars		12%

Anthracnose caused by Colletotrichum lagenarium

Anthracnose seems to be not very important in reducing the yield in states from which it has been reported but it has greatly disfigured the fruit in many cases and is a very common disease of watermelons on the market. Not only does it detract from the market value of the melon but sometimes the lesions penetrate the rind and are secondarily infected with other decay-producing organisms, rendering the melons worthless.

Table 11. Percentage of watermelons affected with anthracnose in individual cars from various states as determined by food-products inspectors of the Bureau of Markets (Aug. 6 to Aug. 27, 1920).

Origin of shipment	Market	Percentage of spotted fruit	Origin of shipment	Market	Percentage of spotted fruit
Georgia	Buffalo	67	North Carolina	Pittsburgh	9
	Chicago	100		"	Slight
	Cleveland	2			
	Indianapolis	9	South Carolina	Buffalo	75
	New Orleans	15		"	5
	"	25		Pittsburgh	40
	"	75		"	68
	"	8		"	50
	"	50		St. Louis	62
	New York	50			
	"	45	Texas	Kansas City	16
	Pittsburgh	10		"	10
	"	5			
	"	13	Unknown	Chicago	45
	"	11		St. Louis	80
	"	15			
	"	3			
	"	25			
	"	7			
	"	13			
	"	9			
	"	7			
	"	2			
Maryland	"	20			
			Total number of cars with anthracnose		38
Missouri	Kansas City	10	Average amount of anthracnose in 38 cars		29%
	Pittsburgh	25			

CANTALOUPE

Leaf blight caused by Alternaria brassicae nigrescens

Indiana: Prevalent throughout the Vincennes region. Causes a distinct loss in yield due to reduction of foliage surface. Next to bacterial

wilt, this is the most important cantaloupe disease in this state. (Gardner, Aug. 15)

Bacterial wilt caused by Bacillus tracheiphilus.

Virginia: Unusual number of complaints this year of wilt on both cantaloupes and cucumbers. Production cut 50% or more in many fields. (Fromme, Sept. 15)

Indiana: Most important cantaloupe disease. Causes marked reduction of stand early in season. Entails expense of resetting. Especially objectionable because Indiana growers transplant from seed bed to field and plant in hills, so every missing plant means loss. (Gardner, Aug. 15)

Mosaic (cause undetermined)

Georgia: About 2% in fields observed to date. (McClintock, Aug. 15)

Indiana: Common in the Vincennes region. Becoming an important loss-producing factor. In general, the disease becomes epidemic too late to seriously affect the yield. (Gardner, Aug. 15)

Rots caused by various organisms

About 425 cars of California cantalopues have been examined by market inspectors during July, August and the early part of September (until Sept. 7). Of these 425 cars approximately 225 showed melons in varying stages and amounts of decay, while the remaining 200 cars were practically free from rots of all kinds. The average percentage of decay in the 225 cars was about 11% and in the 425 cars about 6%. In some cars as many as half the melons were affected and in one car as high as 75% Rhizopus rot was noted.

The decay was largely reported as Rhizopus rot, Fusarium rot, and green mold rot but bacterial, blue mold, gray mold and watery soft rots were also prevalent.

During the early part of the shipping season the majority of the shipments were free from decay but during August and September cars without rot were much less frequent.

CUCUMBER

Reports on cucumber diseases have been received from S. P. Doolittle of the Office of Cotton, Truck and Forage Crop Investigations, who is making a special study of cucumber troubles, and from M. W. Gardner, who has done considerable work with diseases of this crop in the past.

Bacterial blight caused by Bacillus tracheiphilus

Bacterial blight seems to be rather more prevalent than usual on Long Island and in Virginia and Indiana.

New York, Long Island: Wilt caused serious loss in cucumber sections throughcut the island, injury varying from 10 to 75% of plants, probably 10% on the average. (S. P. Doolittle, Sept. 15)

New Jersey: Some blight is reported on melons and cucumbers. (Weekly Crop Notes, Aug. 19)

Virginia: Unusual number of complaints this year of wilt on both canteloupes and cucumbers. Production cut 50% or more in many fields. (Fromme, Sept. 15)

Indiana: Next to mosaic in importance. This year wilt remained destructive throughout the season, whereas it ordinarily is not evident during the latter part of the season. Its prevalence may be correlated with the great abundance of striped beetles this year. (Gardner, Sept. 1)

Conditions similar to Illinois and Wisconsin. (S. P. Doolittle, Sept. 15)

Illinois: Fields in northern Illinois showed 1 to 3% wilt early in season. (S. P. Doolittle, Sept. 15).

Wisconsin: Wilt was widespread, but caused little damage, about 1 to 2% of plants in most fields. (S. P. Doolittle, Sept. 15)

Mosaic (cause undetermined)

Mosaic is probably injuring the cucumber crop more than any other single disease. It is wide-spread over most important commercial cucumber sections and is the cause of serious losses.

New York, Long Island: All fields visited about Farmingdale, Greenlawn, and Deer Park showed the disease, nearly 100% of plants mosaic on August 28. Mosaic found less severe on eastern end of island but was present at Riverhead and Calvin in a number of fields. (S. P. Doolittle, Sept. 15)

Virginia: Mosaic severe (100%) on cucumbers at Arlington Farm, Virginia, late in August. (W. W. Gilbert, Sept. 15)

Indiana: Widely prevalent in gardens and pickle crop. The most serious cucumber disease in the state. In a recent survey of cucumber patches in Marshall County, mosaic was found very abundant, but, as a rule, not of as long standing as in previous years. The disease seemed to be of recent origin. Mosaic fruits were noted in the several pickling stations visited. (Gardner, Sept. 1)

Mosaic reported as severe about Plymouth, Indiana. General reports indicate disease is widespread and conditions about same as in Illinois and southern Wisconsin. (S. P. Doolittle, Sept. 15)

Illinois: Twenty-five to fifty per cent of plants affected in majority of fields in northern part of state, about Marengo and Harvard. Serious in Chicago district. (S. P. Doolittle, Sept. 15)

Michigan: Conditions in southern Michigan similar to those in Wisconsin. Probably 25-30% of fields show mosaic. (S. P. Doolittle, Sept. 15)

Wisconsin: General and destructive in many fields. (R. E. Vaughan, Sept. 1)

Disease severe in southern part of state, 60-70% of fields affected about Sparta and Rockland. Reports indicate about 50% of fields affected throughout southern Wisconsin. Little of the disease north of Fond du lac. (S. P. Doolittle, Sept. 15)

Anthracnose caused by Colletotrichum lagenarium

New York: Found few plants in one field on Long Island, at Mattituck. (S. P. Doolittle, Sept. 15)
Wisconsin: Trace of anthracnose found in two localities (Sparta and Madison). (S. P. Doolittle, Sept. 15)
Arizona: Causing severe damage in a small garden at Wickenburg, Maricopa County. (Brown, July 25)

Angular leaf spot caused by Bacterium lachrymans

Angular leaf spot apparently caused only slight damage this year as compared with some other seasons.

New York, Long Island: Disease causing little damage, present in about 10% of fields visited. (S. P. Doolittle, Sept. 15)
Indiana: Only a very limited amount was found in a number of Heinz fields visited and the contrast between such fields and others planted with untreated seed is very striking. Seed disinfection controls the disease effectively. The marked scarcity of this disease as compared with its prevalence in Heinz fields in 1915, 1916, and 1917 is very striking. (Gardner, Sept. 1)
Illinois: Very little angular leaf spot found. (S. P. Doolittle, Sept. 15)
Wisconsin: Very little angular leaf spot has been seen or reported. (Vaughan, Sept. 1)

Angular leaf spot caused very little injury this season owing to dry weather. (S. P. Doolittle, Sept. 15)

TOBACCO

Wild fire caused by Bacterium tabacum

Tennessee: Definite reports in July and September from counties in northeastern Tennessee. In one case Judy's Pride affected, while White Burley nearby not affected. In Union County a 50% loss is reported by one grower. The disease is apparently becoming important. (Hesler, Sept. 1)

Much is being cut partially ripe on account of "wild fire" damage. (Weekly Crop Notes, Sept. 16)
Wisconsin: Occurred at the Wisconsin Experiment Station. Not seen elsewhere in the state. Many other leaf spots which might be confused with wildfire occurred. (James Johnson, Sept. 1)

Other Diseases

Root rot, caused by Thielavia basicola, is reported by James Johnson Sept. 1 as very serious in Wisconsin this year owing to low temperature. Actual damage was somewhat obscured this year by drought following. Loss to Wisconsin tobacco growers over $1,000,000.

Mosaic, Cause undetermined, occurred in relatively great abundance this year, particularly in Maryland and Wisconsin. Very little in Pennsylvania and Connecticut Valley. In Wisconsin considerable damage was done which is not ordinarily the case. (James Johnson, Sept. 1)

Frenching, cause undetermined, according to James Johnson Sept. 1, occurred in Wisconsin in isolated plants and places, not serious.

Non-parasitic leaf spots, cause unknown, are fairly abundant this year in Wisconsin. (James Johnson, Sept. 1)

Members of the Office of Tobacco and Plant Nutrition Investigations have made a considerable number of observations of tobacco diseases in various states this season. A summary of some of this work has been furnished by Dr. James Johnson, Agent for that office and located at Madison, Wisconsin.

Table 12, 1920. Status of tobacco diseases as outlined by Dr. James Johnson.

Disease	Condition by states						
	Conn.	Mass.	Pa.	Md.	Ohio	Ky.	Wisc.
Black root rot (Thielavia)	heavy	heavy	cons.	little	heavy	heavy	heavy
Brown root rot (Rhizoctonia ?)	slight	cons.	?	cons.	?	?	?
Damping off (Pythium or Rhizoc.)	Practically always some loss from these organisms.						
Hollow stalk (Bacterial)	Never serious - occasional plants occur.						
Wilt (Fusarium)	none	none	none	?	cons. but not serious	some	
Wild fire (B. Tabacum)	cons.	?	?	cons.	cons.	cons.	little
Cercospora leaf spot	?	?	?	?	?	some	?
Non-parasitic leaf spot	Usually occurs but not serious						
Mosaic	slight	slight	slight	heavy	cons.	cons.	more than usual
Frenching	Usually occurs but never serious						

Note: cons. = considerable.

FRUITS

GRAPES

Downy mildew caused by Plasmopara viticola

New Jersey: Common but not severe. (Cook, Sept. 15)
Ohio: Prevalent throughout state. Perhaps more abundant within the last few weeks because of somewhat higher temperature during the day with abundant moisture still continuing. (Thomas, Sept. 15)
Indiana: Has occurred to some extent this season. (Gardner, Sept. 15)
Michigan: Fairly common, no loss reported. (Coons, Sept. 15)

Black rot caused by Guignardia bidwellii

New Jersey: Destructive but no more abundant than usual. (Cook, Sept. 15)
West Virginia: Small amount near Dellslow. (Sheldon, June 25)
Virginia: The rot in later part of the season was quite severe even in vineyards that were fairly well sprayed. (C. L. Shear, Sept. 8)
Ohio: The most severe disease of the grape in Ohio this year. It has been abundant and widespread. (Thomas, Sept. 15)
Indiana: Present. (Gardner, Sept. 15)

Rots caused by various organisms.

A rather large amount of decay is being found in California Malaga, Muscat, and Thompson Seedless grapes arriving at destination. The decay consists principally of blue mold and Rhizopus rots, but some gray mold rot and other decays are also factors. Between the dates of August 16 and September 16 an average of about 7% decay was found by market inspectors in approximately 70 carloads of grapes that showed decay in central and eastern cities.

PEAR

Blight caused by Bacillus amylovorus

New Hampshire: Scarce. (Butler, Sept. 15)
New York: Fire blight has been generally quite severe this season in sod orchards as well as in cultivated plantings. Twig blight on apples is also abundant in many orchards. (H. E. Thomas, Sept. 15)
New Jersey: Common but less severe than usual. (Cook, Sept. 15)
Georgia: Very abundant on the pears throughout the state. One Japanese sand pear and some of the hybrid pears supplied by Prof. Waite have shown marked resistance this season at this Station. (McClintock, Aug. 1)
Ohio: No section of the state is known to have escaped more or less loss. Pear trees located in apple orchards have suffered especially. It is to be noted that where precautions have been taken to remove blighted twigs the

early part of the season, very little loss has been experienced. Little blossom infection, however, was noted at the beginning of the season. Infection seems for the most part to be on the new growth and spread has been favored by weather conditions throughout mid-summer. (R. C. Thomas, Sept. 15)

Indiana: Extremely destructive this year. Occasioned inquiries from growers from all parts of the state. (Gardner, Sept. 15)

Michigan: Epidemic which began early checked by hot weather and loss not very much but greater than the average. (Coons, Sept. 15)

Minnesota: Pear trees in Minnesota are extremely rare. They were probably blighted, because fire blight was very severe on apples. (Section of Plant Pathology, Sept. 15)

Idaho: Blight not serious in the state this year. Only isolated cases of infection noted. Growers in general are succeeding in keeping it out of their orchards. (Hungerford, Sept. 15)

Washington: No reports. (Heald and Dana, Sept. 15)

Scab caused by Venturia pyrina

New Hampshire: Considerable damage done to fruit. (Butler, Sept. 15)

Ohio: While no great loss has been noted occasioned by this organism its presence has been observed and also reports have come to us regarding it from various parts of the state. (R. C. Thomas, Sept. 15)

Washington: Three reports. (Heald and Dana, Sept. 15)

PLUM

Brown rot caused by Sclerotinia cinerea

Brown rot has been common in shipments of plums this year, especially in those from New York and Michigan. The following table shows percentages found in 26 of the more badly affected loads when opened at destination.

Table 13 Percentages of brown rot of plums in carload shipments examined at various markets by food products inspectors of the Bureau of Markets, August 18 to September 15, 1920.

Origin of shipment	Market where inspected	Percentage of brown rot	Origin of shipment	Market where inspected	Percentage of decay	Origin of shipment	Market where inspected	Percentage of decay
N. Y.	Pittsburgh	1/2 car	N. Y.	Cincinnati	4	Mich.	Cincinnati	14
	"	2		"	4		"	0
	"	3		"	20		"	17
	"	35		"	7		"	2
	"	45		Indianapolis	4		Chicago	30*
	"	18		"	10		"	30
	"	40	Va.	"	75-85		St. Louis	8
	"	10	Ohio	"	45-50*		"	45
	Phila.	2-3				Calif.	Phila.	Occasional

* = associated with Rhizopus